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### REMARKS

In the Office Action dated May 3, 2006, claims 1 and 3-19 were rejected ~~under 35~~  
U.S.C. §103(a) as being unpatentable over Hung et al. U.S. Patent No. 6,979,886 in view of  
Brusic et al. U.S. Patent No. 5,960,251. Reconsideration of the application is respectfully  
requested.

As the Examiner is no doubt aware, in order to establish a prima facie case of  
obviousness, three basic criteria must be met. First, there must be some suggestion or  
motivation, either in the references themselves or in the knowledge generally available to one  
of ordinary skill in the art, to modify the reference or to combine reference teachings. Second,  
there must be a reasonable expectation of success. Finally, the prior art reference (or  
references when combined) must teach or suggest all the claim limitations. The teaching or  
suggestion to make the claimed combination and the reasonable expectation of success must  
both be found in the prior art, not in applicant's disclosure. MPEP 2143; *In re Vaeck*, 947  
F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

As noted in the Office Action, Hung et al. '886 discloses singulating lead frames, but it  
does not teach applying an organic solderability preservative (OSP) to the cut portions. As  
noted in the Office Action, Hung et al. '886 also does not disclose applying heat soldering the  
IC to a PCB by applying molten solder, application of OSP by dipping or spraying after  
singulation, using a die and punch or etching to clean. Also, Hung et al. '886 does not  
disclose use of imidazole as an OSP.

Applicants have reviewed Hung et al. '886 and Brusic et al. '251 in detail, and can find  
no recognition in these references of the problems associated with oxidation of lead frames in

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ICs. Given that neither Hung et al. '886 nor Brusic et al. '251 even recognize the problems associated with corrosion of ICs after singulation, there would be no reason to utilize an OSP after singulating an array as recited in independent claims 1, 8 and 13 of the present application. "[A] patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified. This is *part* of the 'subject matter as a whole' which should always be considered in determining obviousness of an invention under 35 U.S.C. §103." MPEP 2141.02(III), citing *In re Spinnoble*, 160 USPQ 237 (CCPA 1969) (emphasis added). In the present case, the prior art does not even recognize that a problem exists, and there would therefore be no reason whatsoever to provide a solution for a problem that is not even recognized in the cited references.

With reference to Brusic et al. '251, Applicants further note that the structure and fabrication methods for ICBs are actually quite different than the fabrication methods and structures for singulated QFN lead frames, and one skilled in the art of manufacturing integrated circuits would not be expected to look to printed circuit board processes, even if the problem were identified.

The general problem of unreliable solder joints between singulated ICs and circuit boards has been a long-standing problem causing substantial cost due to failed assemblies, and significant expenditures in time and monies have been invested in solving this general problem. However, no one is believed to have previously recognized that the solder joint problems were actually being caused by oxidation at the cut surface. Applicants respectfully assert that if both the true source of the problem and the solution were, in fact, obvious, the significant

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expenditures in attempting to solve the problem, and the cost associated with the problem itself, would have been eliminated well before Applicants' invention.

Claims 2-7 depend from claim 1, claims 9-12 depend from claim 8, and claims 14-19 depend from claim 13, and are therefore believed to be allowable for those reasons set forth above in connection with independent claims 1, 8 and 13.

Applicants have made a concerted effort to the place the present application in condition for allowance, and a notice to this effect is earnestly solicited. In the event there are any remaining informalities, the courtesy of a telephone call to the undersigned attorney would be appreciated.

Respectfully submitted,

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